CHAPTER 5

FIELD HYGIENE AND SANITATION

MAIN OBJECTIVE: Given a situation and a list of actions, select the correct action taken to apply the principles of field hygiene and sanitation.

REFERENCE: FM 21-10, Chapters 2 and 4 and Appendix A.

5-1. **Given a situation and a list of actions, select the appropriate action to prevent heat injury**.

TEXT:

Drink plenty of water. Depending on the heat and climate, you may need to drink as much as four gallons of water per day. Drink water even if you are not thirsty. Drink extra water before starting any mission or hard work, and refill canteens at every opportunity. Avoid using unacclimatized personnel for strenuous work. If possible, work in the shade or during the cooler hours of the day. Eat all meals and use all the salt in your rations, or use extra table salt on your foods at meals.

5-2. **Given a situation and a list of actions, select the appropriate action to prevent heat injury when riding in an armored vehicle, or when MOPP gear or body armor is worn**.

TEXT:

MOPP/body armor increases your heat stress. You must drink more water, and work and rest as your leader directs. When in an armored vehicle, you are at an increased risk; therefore, you must drink more water. If directed/authorized by your commander, you can modify your uniform by unblousing your trousers, keeping clothing loose at neck, waist, and lower legs, by keeping skin covered in the sun, and by removing excess clothes/equipment when in the shade.

5-3. **Given a situation and a list of actions, select the appropriate action to prevent cold injury**.

TEXT:

a. Wear uniform properly. Wear only the clothes your commander directs. Avoid wearing tight clothing, and wear clothing in loose layers. Avoid overheating and sweating. Avoid spilling fuel on skin and clothing.

b. Keep your body warm. Keep moving as much as possible, exercising your leg muscles, hands, feet, fingers, and toes. Drink plenty of water, eat all meals, and avoid smoking and drinking alcohol.

c. Protect your feet. Have plenty of socks with you and keep them clean and dry. Wash your feet daily. Avoid tight shoes or boots. Wear overshoes and keep feet dry.

d. Protect your hands. Wear gloves and avoid direct contact with snow, fuel, or bare metal. Warm hands using body heat.

5-4. **Given a situation and a list of actions, select the appropriate action to prevent insect bites/stings**.

TEXT:

Use insect repellent on exposed skin, face, earn, neck, arms, hands, and tight fitting clothing. Read the label for directions and precautions before using. Wear the uniform properly and wear headgear. Repair all tears/holes in uniform and blouse pants inside boots and tuck shirt in at the waist. Keep your uniform clean as much as possible. Follow medical advice. Protect yourself at night with a bednet and aerosol spray. Spray aerosol for one to two seconds inside the bednet before entering.

5-5. **Given a situation and a list of actions, select the appropriate action to prevent diarrhea**.

TEXT:

Fill your canteen with treated water at every chance. When treated water is not available, you must disinfect your canteen using either iodine tablets, chlorine ampules, or boiling. The preferred method of disinfecting is iodine tablets. Do not buy food, drinks, or ice from civilian vendors. Wash your hands after using latrines and before touching food. Wash your mess kit with treated water or in a mess kit laundry. Always bury your wastes immediately to prevent flies from spreading disease germs from waste to food.

5-6. **Given a situation and a list of steps, select the appropriate step to be taken to purify water in a one or two quart canteen using the preferred or alternate methods**.

TEXT:

a. Preferred method. The preferred method of disinfecting a canteen is iodine tablets. Fill your canteen with the cleanest water available. Two iodine tablets are needed to properly purify water in a one quart canteen. Double this amount for a two quart canteen. Replace cap on canteen, wait five minutes, shake well. Loosen the cap and tip the canteen over to allow leakage around canteen threads. Tighten the cap and wait an additional 30 minutes before using for any purpose (REF: World Wide Message dated Aug 1990).

b. Alternate methods. You can use chlorine ampules or boil your water. Fill your canteen with the cleanest water available. Mix one ampule of chlorine with one-half canteen cup of water, stir the mixture with a mess kit spoon until contents are dissolved. Pour one canteen capful of the solution into your, canteen of water. Put two capfuls into the two quart canteen. Place the cap on your canteen and shake. Slightly loosen the cap and tip the canteen over to allow leakage around the threads. Tighten cap and wait 30 minutes before drinking. If water is boiled to disinfect it, it should be boiled for five to ten minutes; however, in an emergency, even boiling water for 15 seconds will help.

5-7. **Given a situation and a List of actions, select the appropriate action to prevent skin infections**.

TEXT:

Bathe frequently, and if showers or baths are not available, use a washcloth daily to wash your genital area, armpits, feet, hands and arms, face, and other areas where you sweat or that become wet, such as between thighs or (for females) under the breasts. Keep your skin dry by using foot powder on your feet and by using talcum powder in areas where wetness is a problem. Wear loose fitting uniforms for better ventilation. Do not wear nylon or silk-type undergarments.

5-8. **Given a situation and a list of actions, select the appropriate action to prevent dental disease**.

TEXT:

Go to the dentist at least annually for examination and treatment. Brush and floss at least once a day, and rinse your mouth with water afterwards. If available, toothpaste helps but is not necessary.

5-9. **Given a situation and a list of actions, select the appropriate action to prevent genital and urinary tract infections**.

TEXT:

a. For males, wash the head of your penis when washing your genitals. If not circumcised, pull the foreskin back before washing. Protect yourself from sexually transmitted diseases (STD). Use a condom--condoms help prevent STD transmission.

b. For females, wash your genital area daily. Do not use perfumed soaps or feminine deodorants in the field--they cause irritation. Protect yourself from VD. Insist that your sex partner use a condom. Do not douche unless directed by medical personnel.

c. Drink extra fluids, even when it is not hot. Some individuals do not drink enough fluids and tend to hold their urine due to the lack of privacy in the field. Drinking extra fluids will help prevent urinary tract infections.

5-10. **Given a situation and a list of actions, select the appropriate action to prevent loss of sleep**.

TEXT:

Follow your leaders' instructions and share tasks with buddies so everyone gets some time to sleep safely. Do not sleep where you may be run over by vehicles or on other unsafe areas. Sleep whenever possible and take catnaps whenever you can, but expect to need a few minutes to wake up fully. Sleep as much as you can before going on a mission which may prevent sleep. Catch up on sleep after going without. Learn and practice techniques to relax yourself quickly.

5-11. **Given a situation and a list of actions, select the actions taken to improve resistance to stress**.

TEXT:

Fear and physical signs or symptoms of stress are normal reactions before and during combat or other dangerous/life-threatening situations. You should not let fear or stress keep you from doing your job. Talk about what is happening with your buddies and especially during after action debriefings. Learn ways to relax quickly. Welcome new replacements into your group and get to know them quickly. If you must join a strange group, be active in establishing friendships. Give each other moral support if things are tough at home or in the unit. Care for your buddies and work together to provide everyone with food, water, sleep, and shelter, and to protect against heat, cold, poor sanitation, and enemy action.

5-12. **Given a situation and a list of responsibilities, select those responsibilities of the field sanitation team**.

TEXT:

During mobilization, the field sanitation team may be required to perform sanitation duties as specified by unit SOP. The scope of operations include, but are not limited to, the following: Inspect water containers and trailers; disinfect unit water supplies; check unit water supply for chlorine; inspect unit field food operations; control insects in unit area; supervise construction of field sanitation devices and garbage pits; provide training; monitor field sanitation operations within the unit; and keep the commander informed on all field sanitation matters.

5-13. **Given a situation and a list of control measures, select the measures which will control mosquitos, fleas, lice, ticks and mites, biting flies, and non-biting flies**.

Arthropod	Breeding Area	Control Measures
Mosquito	Standing water. Artificial containers.	Drain standing water. Empty containers. Spray residual insecticides, use aerosol spray.
Fleas	On rodents and in burrows	Use individual repellents, use insecticides, trap rodents.
Lice	Scalp hair (head lice), groin and body hair (crab lice), seams of clothes (body lice).	Refer for medical treatment, personal hygiene, frequent laundering of clothes and bedding.
Ticks and Mites	On rodents and wild animals, tall grass, brushy areas.	Use individual repellents, insecticide sprays, frequent inspection of body for ticks, proper wearing of uniform, avoidance.
Biting Flies	Varies with species.	Use individual repellent.
Non-Biting Flies	Open latrines, decaying organic matter, uncovered food and waste	Proper waste disposal, keep food covered, use aerosol spray, insecticide spray in breeding areas.

5-14. **Given a situation and a list of actions, select the correct action to protect yourself when operating the two-gallon sprayer**.

TEXT:

Determine the job to be done. Select the correct nozzle (located in the handle). Read the insecticide label before using the insecticide. If it says ready to use, use it; however, if the label says concentrate solution or emulsifiable concentrate, contact your supporting preventive medicine unit for assistance. Follow the label instructions for application rates, precautions and cautions, and insects the insecticide will control. Always wear rubber gloves and an approved pesticide mask, and avoid skin contact with insecticides. Put the insecticide in the sprayer, leaving enough space to allow for pumping air pressure into the tank. Pump the sprayer four to six times or until slight resistance is felt. Do not over pump. Point the nozzle at the area to be sprayed and pull the trigger on the wand. Clean the tank after spraying by flushing tank three times with clear water. Rinse all parts in clear water. Always wash your hands

after spraying, and never eat or smoke while applying an insecticide.

5-15. **Given a situation and a list of factors, select those factors most often involved im outbreaks of foodborne diarrhea**.

TEXT:

Five factors most often involved in outbreaks of diarrhea caused by contaminated foods are:

a. Failure to keep potentially hazardous foods cold (below 45^{o} F).

b. Failure to keep potentially hazardous foods hot (above 140^{o} F).

c. Allowing potentially hazardous foods to remain at warm temperatures.

d. Preparing foods a day or more before being served.

e. Allowing sick employees who practice poor personal hygiene to work.

5-16. **Given a situation and a list of steps, select the appropriate steps to follow when inspecting a garrison or fixed dining facility**.

TEXT:

Have the supervisor check the temperature of potentially hazardous foods. Hot food should be at 140^{o} F or above. Cold food should be 45^{o} F or below. If potentially hazardous foods do not meet these requirements, the unit medical authority should advise the commander on the use or disposal of the food. Check personnel for illness and skin infections. Check their food handling techniques, personal hygiene, and cleanliness. Have the supervisor check the food temperature in cold storage units. Check handwashing facilities for cleanliness, availability of soap and paper towels, and if they are being used by food handlers. Check doors and windows--are they closed or screened to prevent flies from entering?

5-17. **Given a situation and a list of steps, select the appropriate step to follow when inspecting food brought from a dining facility to your unit in the field**.

TEXT:

Check the preparation of insulated food containers. For hot foods, the container should be preheated by the use of boiling water. Foods should be placed in the container while they are

hot (above 140^{o} F). For cold foods, the container should be pre-chilled by the use of ice. Foods placed in the container should be cooler than 45^{o} F. When the insulated containers arrive, have the supervisor check the temperature before serving. Make sure it is 140^{o} F or above for hot foods and 45^{o} F or below for cold foods. Check for handwashing devices for use by soldiers.

5-18. **Given a situation and a list of steps, select the appropriate step to follow when inspecting a mess kit laundry.**

TEXT:

Check the mess kit laundry. It should consist of four 35-gallon GI cans. The first can is a scrap can that soldiers can use to put scraps into. The second can is filled with hot (150^{o} F) soapy water and is used to wash the mess kit. The third and fourth cans have clear boiling water to rinse and disinfect the mess kit. If immersion heaters are not in use, food service disinfectant may be used. Check to see if the label directions are being followed.

5-19. **Given a situation and a list of steps, select the appropriate step to follow when inspecting a 400-gallon water trailer, a lyster bag, or a five-gallon water can.**

TEXT:

Water containers should be inspected quarterly in garrison when not being used and before filling at water distribution points.

a. Unit water trailer. Make sure the sealing gasket is in place around the manhole cover and that it is free of excessive cracks and dry rot. The manhole cover should provide an effective seal. Make sure the drain plug is operable. It should be removable without excessive effort. Check the interior surface for excessive cracks. Check for signs of being used for storage of products other than water. Rust stains and other discoloration caused by common natural chemicals in the water pose no health problem. Make sure the spigots are clean and operable. Covers over spigots should open and close with ease. spigot handles should operate freely. Before filling a water trailer at the water distribution point, check the interior, the hose used to fill the trailer, and the manhole cover to make sure it is secure.

b. Lyster bag. Check the interior for dirt and other debris, and check for holes. Check the cover to make sure it fits and is free of holes. Check the spigots to make sure they are clean, in place, and operable.

c. Water cans. Check interior of cans for contamination. If the can has an odor of gasoline, do not use for drinking water.

5-20. **Given a situation and a list of steps, select the appropriate step to follow when testing water for chlorine residual**.

TEXT:

a. Check the chlorine residual when: distribution points; water containers arrive in unit areas; directed by command medical authority; and treating a raw water supply.

b. Determine the desired chlorine residual in parts per million (ppm). At the point of consumption, the supplies from a water distribution point should have at least one ppm chlorine residual. When the unit must disinfect a raw water supply, the finished product should have a five or ten ppm chlorine residual as directed by the medical authority.

c. Select the desired color comparison tube (marked one, five, or ten) based on the desired chlorine residual you want to test for. Place one test tablet in the color comparison tube cap and crush it with the bottom of the test tablet bottle. Put the crushed tablet into the color comparison tube.

d. Flush the spigots of the water container being checked and fill the tube to a point just below the color band.

e. Place the cap on the color comparison tube and shake until the test tablet is completely dissolved.

f. Compare the color shade of the water with the color band on the comparison tube. The water is safe to use if the color of the water is the same shade or darker than the color band on the tube. The water must be chlorinated if the color is lighter than the color band on the tube.

5-21. **Given a situation and a list of steps, select the appropriate step taken to purify water at the unit level.**

Text:

a. You should chlorinate the unit water supply when the water supply has no chlorine residual; when the chlorine residual is below the required levels; or when raw (untreated) water supplies must be used. Before adding chlorine, check the chlorine residual. If the chlorine residual is less than the desired level, add enough chlorine to raise the residual to five ppm. If a ten ppm chlorine residual is directed by the medical authority, double the amount you would normally add.

b. Wait ten minutes, then check the chlorine residual. If the residual is less than five ppm, add more chlorine and wait ten more minutes. If the residual is at least five ppm, wait an additional twenty minutes before drinking the water.

5-22. **Given a situation and a list of amounts, select the appropriate amount of calcium hypochlorite chlorine added at the start of the purification process to yield a chlorine residual of five ppm, for a 400-gallon water trailer, a 36-gallon lyster bag, and a five gallon water can.**

TEXT:

One ampule of calcium hypochlorite will chlorinate a lyster bag to two ppm; therefore, to have a residual of at least five ppm, you must add two ampules to a lyster bag. One half ampule will adequately chlorinate a five gallon water can. To chlorinate a 400-gallon water trailer, you could use the ampules, but it is safer and quicker to used bulk calcium hypochlorite. It takes one mess kit spoonful of calcium hypochlorite dissolved in a canteen cup of water to chlorinate a water trailer (400 gals). If the medical authority directs that the residual should be ten ppm, double the above amounts.

5-23. **Given a situation and a list of latrines, select the appropriate latrine to be used in accordance with the situation.**

TEXT:

The cat-hole latrine is used when on the march or when the unit is on the move. If you will be bivouacked in an area for one to three days, the latrine of choice would be the straddle trench. For temporary camps, the deep pit-latrine would be used. A burn-out latrine or pail-latrine should be used when the ground is to hard to dig or when the water table is too high (soil is very wet). Enough latrines should be provided for four percent of the males and six percent of the females in the unit.

5-24. **Given a situation and a list sites, select an appropriate site for locating garbage pits, soaking pits, and latrines.**

TEXT:

Garbage and soakage pits should be at least 30 yards front food service facilities. Latrines should be as far as possible from food service facilities (100 yards or more is best). Latrines should be located on level ground. Never uphill from the campsite or water supplies.

5-25. **Given a situation and a list of actions, select the appropriate action taken to close a latrine in both a noncombat and a combat area.**

TEXT:

Close latrines and garbage pits when filled to within one foot of the ground surface. Close out by packing earth in successive

three inch layers until mounded one foot above ground level. Post a sign stating “CLOSED LATRINE/GARBAGE PIT" and date (except in combat).

5-26. **Given a situation and a list of steps, select the appropriate steps to construct and maintain field handwashing and shower devices**.

TEXT:

Field handwashing devices need not be elaborate; however, you must ensure that there is a soakage pit under each device and that soap and water is available. Field showers should also have a soakage pit under them. The number of persons using the devices and the type of soil will determine how large the soakage pit should be.